

Name

Key

Date

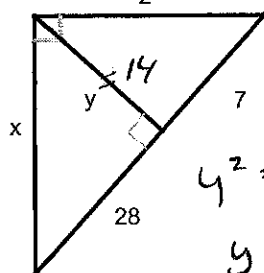
Chapter 7 Test Review

Solve for x, y, or z. Show work. Figures are not drawn to scale.

For #s 1-10, use **exact answers** only. No decimals.

Use geometric mean for #s 1 and 2.

1. $x = 14\sqrt{5}$ $y = 14$ $z = 7\sqrt{5}$



$$\frac{28}{y} = \frac{y}{7}$$

$$\frac{7}{z} = \frac{z}{35}$$

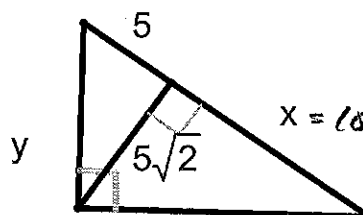
$$z = 7\sqrt{5}$$

$$\frac{28}{x} = \frac{x}{35}$$

$$x^2 = 28 \cdot 35$$

$$x = 14\sqrt{5}$$

2. $x = 10$ $y = 5\sqrt{3}$ $z = 5\sqrt{6}$



$$50 = 5x$$

$$10 = x$$

$$\frac{10}{z} = \frac{z}{15}$$

$$\frac{5}{y} = \frac{y}{15}$$

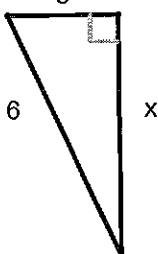
$$z = 15\sqrt{6}$$

$$y = 5\sqrt{3}$$

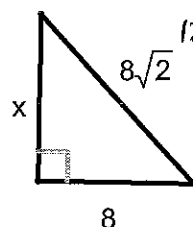
3. $3\sqrt{3}$

$$36 = x^2 + 9$$

$$27 = x^2$$



4. 8

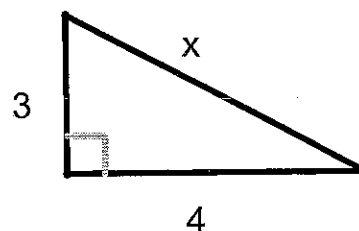


$$128 = x^2 + 64$$

$$64 = x^2$$

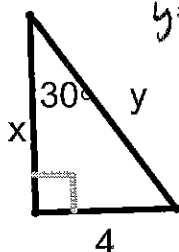
$$8 = x$$

5. 5



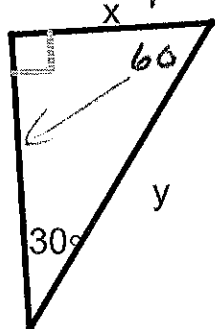
6. $x = 4\sqrt{3}$

$$y = 8$$

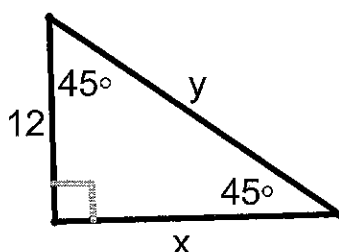


7. $x = 4\sqrt{3}$ $y = 8\sqrt{3}$

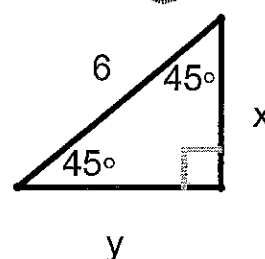
$$\frac{12}{\sqrt{3}}$$



8. $x = 12$ $y = 12\sqrt{2}$



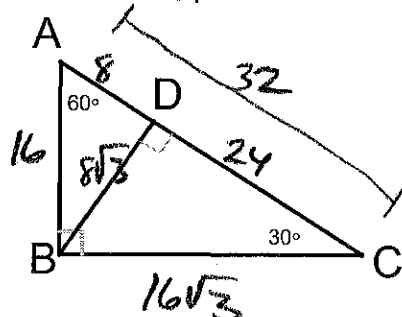
9. $3\sqrt{2} = x = y$



10. $AB = 16$

$$CD = 24$$

$$BD = 8\sqrt{3}$$

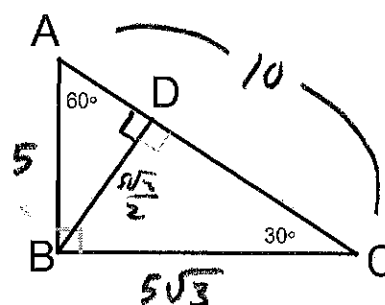


30	60	90
x	$x\sqrt{3}$	2x
8	$8\sqrt{3}$	16
16	$16\sqrt{3}$	32
5	$5\sqrt{3}$	10
$\frac{5\sqrt{3}}{2}$	$\frac{15}{2}$	$5\sqrt{3}$

11. $AB = 5$

$$BD = \frac{5\sqrt{3}}{2}$$

$$AC = 10$$



$$29 > 10 + 13$$

Mrs. Hayden

$$AB = \sqrt{1 + 9} = \sqrt{10}$$

$$BC = \sqrt{4 + 25} = \sqrt{29}$$

$$AC = \sqrt{9 + 4} = \sqrt{13}$$

12. Classify the triangle acute, right, or obtuse.

a. Obtuse 3, 7, 9 $81 > 9 + 49$

b. Obtuse A(0, 4) B(1, 1) C(3, 6)

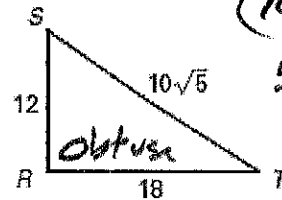
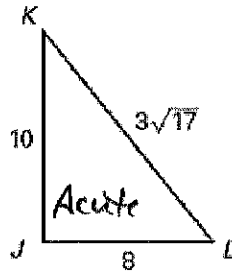
In Exercises 13 and 14, complete the statement with $<$, $>$, or $=$, if possible. If it is not possible, explain why.

13. $m\angle J$ $<$ $m\angle R$

14. $m\angle K + m\angle L$ $>$ $m\angle S + m\angle T$

$$(3\sqrt{17})^2 > 10^2 + 8^2$$

$$153 < 164$$



$$(10\sqrt{5})^2 > 12^2 + 18^2$$

$$500 > 468$$

The sides and classification of a triangle are given below. The length of the longest side is the integer given. What value(s) of x make the triangle? (Note: you may need to use quad. Form.)

15.

$x, x-3, 11$; obtuse

on LL

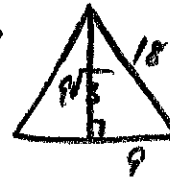
16. What is the perimeter of an equilateral triangle with a height of 15? (Draw a picture.)

$$P = 30\sqrt{3} \text{ units}$$



17. What is the height of an equilateral triangle with one side equal to 18?

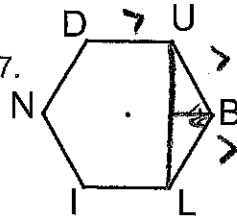
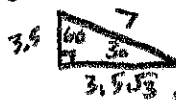
$$h = 9\sqrt{3}$$



18. Given the regular hexagon, find UL. $DU = 7$.

$$m\angle B = 120^\circ$$

$$UL = 7\sqrt{3}$$

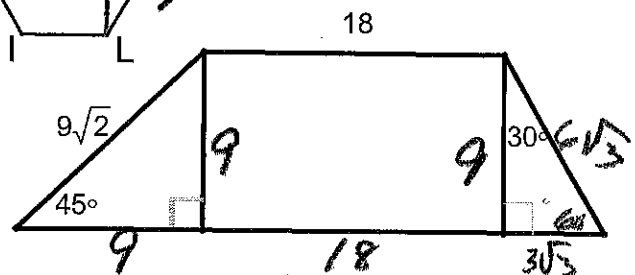


For #s 19-24, round to the nearest tenth.

19. Find the perimeter of the trapezoid to the right.

$$P = 18 + 9 + 18 + 9\sqrt{2} + 3\sqrt{3} + 6\sqrt{3}$$

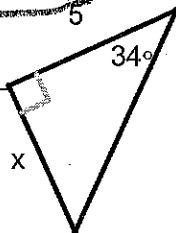
$$P = 73.34$$



20. 3.4

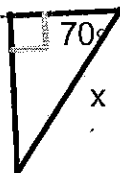
$$\tan 34^\circ = \frac{x}{5}$$

$$x = 3.4$$



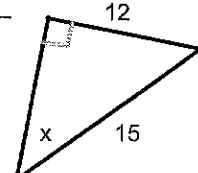
21. 26.3

$$\cos 70^\circ = \frac{9}{x}$$



22. 53.10

$$\sin x = \frac{12}{15}$$



23. 36.9° A 15ft ladder is placed against a building. It needs to reach a height of 9ft. At what angle should it be placed with the ground?

on LL

24. 70.4° A lighthouse watchman observes two sailboats east of the lighthouse. The angles of depression to the two boats are 34° and 55° . The height of the lighthouse is 90ft. What is the distance between the boats?

on LL

$$15. \quad 11^2 > x^2 + (x-3)^2$$

$$121 > x^2 + x^2 - 6x + 9$$

$$121 > 2x^2 - 6x + 9$$

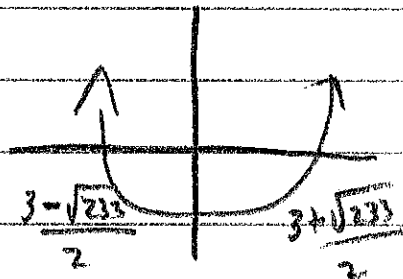
$$0 > 2x^2 - 6x - 112$$

$$0 > x^2 - 3x - 56$$

$$0 = x^2 - 3x - 56$$

$$\frac{3 \pm \sqrt{9 - 4(-56)}}{2}$$

$$\frac{3 \pm \sqrt{233}}{2}$$



Restrictions

$$\approx 9.1 \approx -6.1$$

$$x > 0$$

$$x - 3 > 0$$

$$x > 3$$

$$7 < x < \frac{3 + \sqrt{233}}{2}$$

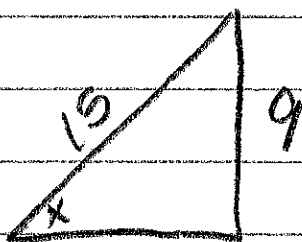
Δ Ineq. Term

$$x + x - 3 > 11$$

$$2x > 14$$

$$x > 7$$

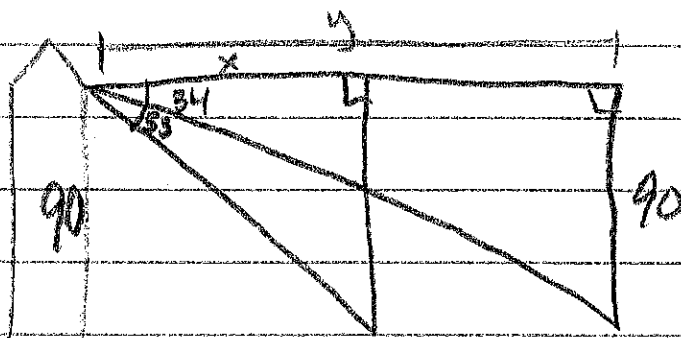
23.



$$\sin x = \frac{9}{15}$$

$$x = 36.9^\circ$$

24.



$$\tan 34 = \frac{90}{y}$$

$$y = 133.4$$

$$\tan 55 = \frac{90}{x}$$

$$x = 63.0$$

$$\begin{array}{r} 133.4 \\ - 63.0 \\ \hline 70.4 \text{ ft} \end{array}$$